What is claimed is:

[Claim 1] 1. A heterojunction bipolar transistor comprising:

a semiconductor substrate of a first conductivity type including a collector region;

a base region formed on said substrate;

an emitter region formed over said base region; and

at least one of said collector, base and emitter regions including a first region doped with an impurity having a first concentration and a second region doped with said impurity having a second concentration.

[Claim 2] 2. The heterojunction bipolar transistor of claim 1, wherein said base region comprises SiGe.

[Claim 3] 3. The heterojunction bipolar transistor of claim 1, wherein said first concentration is less than said second concentration.

[Claim 4] 4. The heterojunction bipolar transistor of claim 1, wherein said emitter region comprises said first region doped with a dopant having a first concentration and said second region doped with said dopant having a second concentration greater than said first concentration.

[Claim 5] 5. The heterojunction bipolar transistor of claim 4, wherein said first region is formed closer to an emitter-base junction region than said second region.

[Claim 6] 6. The heterojunction bipolar transistor of claim 1, wherein said base region comprises said first region doped with a non-dopant having a first concentration and said second region doped with said non-dopant having a second concentration greater than said first concentration.

[Claim 7] 7. The heterojunction bipolar transistor of claim 6, wherein said first region is formed closer to an emitter-base junction region than said second region.

[Claim 8] 8. The heterojunction bipolar transistor of claim 1, wherein an impurity concentration profile of said first or second regions comprises a step profile or a graded profile.

[Claim 9] 9. A heterojunction bipolar transistor comprising:

a semiconductor substrate of a first conductivity type including a collector region;

a base region formed on said substrate including a first base region doped with a non-dopant having a first concentration and a second base region doped with said non-dopant having a second concentration; and

an emitter region formed over said base region including a first emitter region doped with a dopant having a first concentration and a second emitter region doped with said dopant having a second concentration.

[Claim 10] 10. The heterojunction bipolar transistor of claim 9, wherein said base region comprises SiGe.

[Claim 11] 11. The heterojunction bipolar transistor of claim 9, wherein said first base region and said first emitter region are formed closer to an emitter-base junction region than said second base region and said second emitter region.

[Claim 12] 12. The heterojunction bipolar transistor of claim 9, wherein said non-dopant comprises carbon.

[Claim 13] 13. The heterojunction bipolar transistor of claim 11, wherein said first carbon concentration is from about $8x10^{18}$ cm^{-3} to about $5x10^{19}$ cm^{-3}, and said second carbon concentration is from about $1.5x10^{19}$ cm^{-3} to about $7x10^{19}$ cm^{-3}.

[Claim 14] 14. The heterojunction bipolar transistor of claim 9, wherein said dopant comprises arsenic.

[Claim 15] 15. The heterojunction bipolar transistor of claim 14, wherein said first arsenic concentration is from about $5x10^{19}$ cm^{-3} to about $3x10^{20}$ cm^{-3}, and said second arsenic concentration is from about $1x10^{20}$ cm^{-3} to about $7x10^{20}$ cm^{-3}.

[Claim 16] 16. A method of fabricating a heterojunction bipolar transistor comprising the steps of:

providing a semiconductor substrate of a first conductivity type including a collector region;

forming a base region on said substrate;

forming an emitter region over said base region;

doping a first region of at least one of said collector, base and emitter regions with an impurity having a first concentration; and

doping a second region of said at least one of said collector, base and emitter regions with said impurity having a second concentration.

[Claim 17] 17. The method of claim 16, wherein said first region is formed closer to an emitter-base junction region than said second region.

[Claim 18] 18. The method of claim 16, wherein said first concentration is less than said second concentration.

[Claim 19] 19. The method of claim 16, wherein said steps of doping said first and second regions of said emitter region comprises depositing a first emitter polysilicon layer and a second emitter polysilicon layer.

[Claim 20] 20. The method of claim 16, wherein said steps of doping said first and second regions of said base region comprises:

incorporating said impurity in a gas phase in a deposition process; and

varying an amount of said impurity gas during said deposition process to provide said first and second concentrations.